

EARLY LIFE STRESS AND THE
MODERATING EFFECT OF THE SCHOOL

By

TIA C. P. CLAYBROOK

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Thesis Approved:

Michael J. Merten, Ph.D.

Thesis Adviser

Alex J. Bishop, Ph.D.

Amy L. Tate, Ph.D.

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Abstract: Antisocial behavior during adolescence can often lead to negative outcomes. These negative outcomes are more likely among youth who have been exposed to early life stressors (ELS), or potentially traumatic events. To combat negative outcomes, protective factors are crucial. While parental involvement and supportive relationships have been identified as protective factors, many ELS experienced by adolescents are in the context of their home environment making it critical to identify protective factors outside the home. The current study examines school protective factors (school connectedness and teacher-student relationship quality, TSRQ) as moderators for antisocial behavior and anger expression in youth who have been exposed to high levels of ELS. Results identified that majority of the seventh-grade adolescent population sample had been exposed to at least two ELS. ELS was a predictor for antisocial behavior and anger expression explaining 27% and 17% of the variance, respectively. Furthermore, the current study identifies TSRQ but not school connectedness as a moderator, or protective factor, for antisocial behavior exhibited by adolescents who have been exposed to ELS. These results suggest that supportive relationships within the school environment may be more important for prevention of antisocial behavior than feeling connected to the school environment itself. Anger expression was not moderated by TSRQ or school connectedness which could be explained by possible differences in emotion expression at school than at home. Future research is needed to examine qualities of supportive TSRQ and determine whether the school environment indirectly impacts outcomes in adolescents as a supportive school environment may impact the teaching quality of educators.

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CHAPTER I

GENERAL INTRODUCTION

Overview

Adolescence is a developmental period when vulnerability for externalizing behavioral problems (e.g., anger expression, delinquency) is heightened (Steinberg & Morris, 2001). Further influencing behavioral outcomes, early life stressors (ELS), or events that can be perceived as traumatic, are common during adolescence. Finkelhor, Turner, Shattuck, and Hamby (2013) found that more than 41% of American youth had experienced at least one early life stressor, such as witnessing violence, by the time they were 17 years of age. By adulthood, Centers for Disease Control (CDC; 2016) have reported that more than 65% of Americans have experienced at least one adverse childhood experience (ACE). While ACEs account for several ELS, the ten-item scale does not fully consider all forms of potentially traumatic experiences (e.g., separation from a loved one, been in a natural disaster, or sexual persuasion), which suggests that the percentages of individuals with early life stress may be much larger than this research has found.

ELS are any childhood event that either directly or indirectly poses a perceived threat to the overall safety or well-being of an individual (Gallus, Shreffler, Merten, & Cox, 2014). Early life stress is the experiencing of one or more ELS and can manifest through interpersonal and non-interpersonal stressors (Briere & Spinazzola, 2005). Interpersonal stressors include family violence and/or physical violence to the child. These ELS have been associated with externalizing behaviors, such as anger expression and substance use. Non-interpersonal stressors are those not involving intentional behaviors or acts of others (e.g., natural disasters, vehicular accidents, severe injuries) and have been shown to result in internalizing problems such as fear and anxiety (Briggs-Gowan, Carter, Clark, Augustyn, McCarthy, & Ford, 2010) and externalizing behavior problems (Appleyard, Egeland, Dulmen, & Stroufe, 2005). These effects on development and functioning in older children and adults are indicative of heightened risk for psychopathology (e.g., conduct problems, substance abuse), especially individuals who have experienced multiple ELS (Ford et al., 2000).

Using data from the first eight waves of the Great Smoky Mountains Study, Copeland, Keeler, Angold, and Costello (2007) examined the prevalence of ELS and vulnerability characteristics for children and adolescents. More than two-thirds of children were exposed to at least one early life stressor by age 16. Of those, 14% developed symptoms of posttraumatic stress. They also found posttraumatic stress symptoms to be more prevalent in older children with a history of complex early life stress (i.e., exposure to more than one early life stressor) and coming from a dysfunctional family environment. Those with exposure to a greater number of ELS were more likely to present with psychopathology such as anxiety and depressive disorders.

Substance abuse, such as drug and alcohol dependence, has also been identified as an outcome for youth with complex early life stress (Caspi et al., 2002; Ducci et al., 2009; Hyman & Sinha, 2009; Yuan et al., 2006).

The stability of ELS indicates that the presence of mental health problems is predictive of maladjustment later in life (Moffitt, Caspi, Dickson, Silva, & Stanton, 1996); however, not all youth with early emerging externalizing behavior problems are doomed for later adversity (Campbell, Shaw, & Gilliom, 2000), indicating a presence of protective factors (Finkelhor & Kendall-Tackett, 1997). Family, peers, and social support systems are important protective factors for healthy adolescent development related to academic success (Yildirim & Eugene, 2003), decision-making abilities (Gucray, 1998), life satisfaction (Duru, 2007), problem-solving abilities, and self-esteem (Arslan, 2009). Parents are supports for critical decision making and teachers support academic attitude and success (Wall, Covell, & Macintyre, 1999).

Schools are intended to be relatively stable and accessible community sites to promote child and adolescent connectedness, particularly during times of transition (National Research Council and Institute of Medicine, 2002), aiming to foster overall health and well-being outcomes (National Research Council and Institute of Medicine, 2004). Adolescents spend much of their time at school when they are not at home, making environmental contexts, such as high levels of school connectedness and positive teacher-student relationships, important for protection against negative outcomes. This is especially true for adolescents with poor family relationships at home or who come from a home that serves as a source of stress (Cook et al., 2005). Positive and supportive

relationships in the classroom with classmates and teachers promote students' sense of belonging and positive identity within the school environment (Furrer & Skinner, 2003).

Purpose

Adolescents are at heightened risk for psychopathology due to normal stressors of their developmental stages (e.g., puberty, hormones, brain plasticity) and ELS further compound this risk (Cook et al., 2005). Because almost two-thirds of American adults have experienced at least one early life stressor (CDC, 2016), identification of protective factors is crucial. More specifically, due to the risk of living with stressors within the home or family system, there is a strong need for protective factors outside of the home environment. While many familial protective factors have been identified by previous research (e.g., DuMont, Widom, & Czaja, 2007), for many adolescent victims of early life stress the home environment and family relationships are stressors (see Appleyard, Egeland, Dulmen, & Stroufe, 2005; Gallus et al., 2014). For this reason, social support ties outside of the home environment are critical protective factors for adolescent resilience through ELS.

Past research has identified teacher-student relationships and school connectedness to serve as a buffer for early life stress (Hughes & Chen, 2011; Hughes & Kwok, 2007; Koth, Bradshaw, & Leaf, 2008); however, studies have not controlled for familial factors (e.g., parent-child relationship, parental involvement). Furthermore, teacher-student relationship contexts are frequently included in school connectedness items (e.g., Koth et al., 2008; Loukas, Roalson, & Herrera, 2010). Although teacher-student relationships can vary from classroom to classroom (Loukas et al., 2010), the school environment should remain relatively stable over time (National Research Council

and Institute of Medicine, 2002). The current study aims to examine the moderating effect of school connectedness and teacher-student relationship quality (TSRQ) separately. Furthermore, parental involvement has been commonly identified as a protective factor, the current study controls for its impacts on anger expression and antisocial behavior outcomes.

Thesis Organization

The current thesis contains three chapters, a reference section, and appendices of the study's extended review of the literature and results tables. Chapter 1 provides an overview of the prevalence of ELS and mental health outcomes for youth in the United States. Protective factors in the context of family and school are also reviewed. This chapter explains the purpose of the study, literature gaps addressed by the study, and the study's research goals. Chapter 2 contains the manuscript, to be submitted to the *Journal of Adolescent Education*, which describes the prevalence and outcomes of ELS, identifies protective factors for early life stress, and provides implications for professionals in the field. The manuscript also includes the study's hypotheses, methodology, and result. The final chapter, Chapter 3, will provide an overview of the study, strengths and limitations, directions for future research, and implications for professionals and policy.

CHAPTER II

EARLY LIFE STRESS AND THE MEDIATING EFFECT OF THE SCHOOL

A manuscript to be submitted to the *Journal of Adolescent Education*

Tia C. P. Claybrook

Background

Marked by distinctive developmental stages, early adolescence is the period of life experienced between the ages of 10 to 14 years and encompasses a critical period of development and rapid transformation in domains of cognitive, emotional, physical, and social contexts (Shonk & Cicchetti, 2001). These very characteristics that distinguish this developmental period from others increase the likelihood of experiencing behavioral problems such as poor emotion regulation and antisocial behavior (Caspi et al., 2002; Enoch, 2011). Compounding this vulnerability, early life stressors (ELS) are also common during this developmental stage. ELS are events or experiences that may be perceived as traumatic, such as exposure to abuse, violent crime, and abuse within the home (Briere & Elliott, 2003). Direct (occurred to self) or indirect (occurred to loved ones) experiences of victimization within the home or community have been identified as the most stressful events youth experience. During adolescence, early life stress can

manifest by experiencing any event during childhood that is perceived as unmanageable and challenges one's sense of security. Exposure to violence within the neighborhood or community and separation from a primary caregiver are more commonly reported by youth (Gallus, et al., 2014). ELS increase the risk of mental health problems, which could lead to poor educational attainment and other negative outcomes (Ducci et al., 2009; Henrich, Brookmeyer, & Shahar, 2005; Hyman & Sinha, 2009).

To combat these negative outcomes, protective factors involving the family and community are critical. Positive family dynamics, such as supportive parent-child relationships, buffer the negative effects of ELS and decrease the likelihood of depressive symptoms and substance use in adolescents (CDC, 2016). The school environment has also been shown to impact mental health outcomes in youth. More specifically, a positive school climate, school connectedness, and positive teacher-student relationships have been shown to decrease the likelihood of mental health problems and high school dropout (Bond et al., 2017; Whitlock, 2006). Guided by life course theory and using a risk and resilience from an ecological perspective framework, the current thesis reviews the literature on early life stress, outcomes associated with ELS, and protective factors related to social relationships as well as school connectedness. The proposed study will examine the impact of ELS on urban youth and, after controlling for parental protective factors, identify whether teacher-student relationship quality and school connectedness are protective factors separately.

Review of Literature

Early Life Stressors (ELS)

Early life stress is the term used to describe stressors, or exposure to potentially traumatic events, in early life (e.g., before adulthood; Enoch, 2011). ELS are experiences that pose a threat or are perceived to threaten the physical or psychological health of an individual (Gallus et al., 2014). These events include adversities such as domestic violence, being injured in a motor vehicle accident, witnessing someone getting seriously injured (by natural disaster, other individual, or accident), and being separated from a loved one (Briggs-Gowan et al., 2010). Complex early life stress is described as exposure to more than one early life stressor. Early life stress can be conceptualized to explain childhood maltreatment and/or stressful events occurring prior to adulthood. The level of exposure to stressful events early in life has been correlated with increased risk for psychopathology in later in life (Enoch, 2011). ELS are common in the United States, with more than half of adults reporting exposure to at least one stressor prior to the age of 18. For 20% of women and 22% of men, childhood abuse is experienced physically. These percentages change to 32% for women and 14% for men when surveyed about sexual abuse in childhood. For men and women together, 21% have experienced both physical and sexual abuse (Briere & Elliott, 2003).

The additive effect of lifetime trauma is evident in children and adolescents (Cloitre et al., 2009). As exposure to ELS varies among individuals, so do individual reactions to these stressors. Briere and Spinazzola (2005) viewed these reactions to stressors as though they reside on a complexity continuum. On one end of the continuum are single, adult-onset traumatic experience reactions from those normally-developing

individuals who have a normal reactive nervous system and no prior psychological disorders. On the other end of the complexity continuum are responses from individuals who have experienced multiple, early-onset, chronic, and invasive traumatic events. These traumatic events are often interpersonal in nature and frequently occur for those more vulnerable to the effects of stressors.

Early Life Stress Outcomes

Internalizing behaviors, such as depression, and externalizing behaviors, such as anger expression and substance use, are more likely in adolescents who have experienced ELS. Moylan et al. (2010) examined the effects of domestic violence and child abuse during childhood on internalizing and externalizing problems in adolescents. Their results showed that the combination of child abuse and domestic violence significantly increases the risk for internalizing and externalizing behavior problems during adolescence.

Although not statistically significant, exposure to either domestic violence or child abuse alone tended to indicate behavioral problems for those adolescents. Appleyard, Egeland, Dulmen, and Stroufe (2005) examined the impact that cumulative risk, such as family disruption, parental stress, and child maltreatment, has on behavioral outcomes for adolescents. Their results determined that the higher their cumulative risk, the more likely adolescents are to exhibit internalizing and/or externalizing behavioral problems.

In a review of current literature on stressful events and how they impact the brain, Lupien, McEwen, Gunnar, and Heim (2009) identified that chronic exposure to stress hormones negatively impacts brain development, behavior, and cognition, regardless of when the individual was exposed to stress (i.e., prenatal through late adulthood). These effects, as a result of ELS, increase the risk of developing psychiatric disorders such as

oppositional defiant disorder (ODD), separation anxiety (Scheeringa, Zenah, Meyers, & Putnam, 2003), and posttraumatic stress disorder (PTSD; Cougle et al., 2010). Poverty is a confounding risk, as adolescents from impoverished neighborhoods are more likely to witness violence and other potentially traumatic events. Additionally, for individuals in high poverty areas, emphasis is placed on survival (Bolland et al., 2007).

With purposes of studying the effects of ELS occurring prior to childhood, Briggs-Gowan et al. (2010) used an ethnically diverse sample of one- and two-year-olds recruited from seven assessment or treatment sites for developmental delays and mental health problems. Participants' parents completed questionnaires and interviews regarding exposure to adverse, non-interpersonal events and violence exposure as well as exposure to stressful life events within the previous three months. Controlling for economic disadvantage, developmental level, and parental anxiety and depressive symptoms, results showed that compared with children who have not been exposed to ELS, children who have been exposed to such events were more likely to have psychiatric disorders. Furthermore, ethnocultural issues, such as heritage and traditions, compound the effect of complex early life stress for children (Garbarino, Kostelnny, & Grady, 1993). Although whites are more likely to experience trauma than any other group, blacks and Latinos are more likely to exhibit symptoms of posttraumatic stress (Roberts, Gilman, Breslau, Breslau, & Koenen, 2011).

Anger expression. Adolescents can become angered for a number of reasons (e.g., criticism, ignored, perceived threats; Yazgan-Inanc, Bilgin, & Atici, 2007). Some scholars argue that anger arises as a result of an individual's personal frustrations and appreciations. According to Eisenberg and Delaney (1998), anger can derive from three

experiences: (1) situations perceived as frustrating; (2) situations that threaten an individual's sense of security or efficiency; and (3) situations when expectations are not matched by behavior. Anger is thought to consist of two components: state and trait. State anger is the emotion of anger where an individual experiences muscle tension and a stimulated autonomous nervous system. This component can vary in intensity from mild to severe, depending on the individual's perception of the attack. Trait anger is explained as a frequent tendency for state anger. In other words, trait anger is the result of constantly living in a status of state anger (Spielberger, 1991). Furthermore, there are three dimensions, or elements of anger. The first element, physiological, consists of a physiological change in the body following exposure to a situation that is deemed as frustrating or increases anger intensity (Arslan, 2009). The second element, cognitive and social, is explained by an individual's perception of an event or situation that makes an individual feel uneasy, angry, or fearful (Ozer, 2000). The final element, behavioral and reaction, is an expression of if and how anger is expressed by an individual (Arslan, 2009). Subjection to ELS limits the capacity of an individual to effectively regulate their emotions (Dong et al., 2004).

In adolescence, anger stimuli are predominately social as the behaviors and personalities of others can trigger anger in youths (Arslan, 2009). For this reason, it is critical to obtain information on adolescent perceptions of their environment to accurately assess their social support systems such as family, friends, peers, and teachers. Arslan (2009) examined the relationships between perceived social support and anger expression in 499 adolescents between the ages of 16 and 18. They found significant relationships among anger expression and relationships with parents and teachers. Peer relationships

were not significantly associated with anger expression. Gender differences were not implored.

Antisocial behavior. Childhood stressors have been linked to antisocial behavior, such as drug use and belonging to a gang, in adolescence and adulthood (Ducci et al., 2009; Nelson et al., 2010; Pilowsky et al., 2009). Compared to individuals who have not experienced ELS, those who have experienced more than one stressor are at increased risk for alcohol dependence in adulthood (Pilowsky et al., 2009). Ducci et al. (2009) found between 3.2 to 4.2 times higher likelihood for black adult men to develop substance dependence after being exposed to maltreatment in childhood. Childhood exposure to physical and sexual abuse increases the risk for alcohol dependency in men. For adult women, all forms of abuse and neglect exposure during childhood increases the risk for alcohol dependency (Koss et al., 2003). In a study of former and current American drinkers, ELS predicted alcohol use prior to the age of 14 (Rothman Edwards, Heeren, & Hingson, 2008). Binge drinking at age 16 is predictive of alcohol/drug dependence during adulthood (Viner & Taylor, 2007).

Protective Factors

Not all children exposed to ELS develop psychopathology (Enoch, 2006) which indicates a presence of protective factors (DuMont et al., 2007). Prior to entering school, a child's socialization opportunities are predominantly with family (Hinshaw & Lee, 2003; Patterson, 1982) and caregiver support is a crucial mediating factor in children's adaptation to victimization (CDC, 2016). After entering school, socialization opportunities expand and children have opportunities to build relationships with peers and other adults. These relationships have the opportunity to impact development in

youth, especially relationships with teachers (Hinshaw & Lee, 2003; Patterson, 1982).

Environmental and contextual protective factors are very important to buffer the effects of ELS (CDC, 2016).

Parental involvement. Scholars argue that effective caregiving is the most critical protective factor for high-risk youth (CDC, 2016; Masten, Herbers, Cutuli, & Lafavor, 2008). Parental involvement is a reflection of parents' efforts to encourage and support their children in achieving conventional values and goals (Chen, 1999) and is central to parenting for mothers and fathers (Pleck & Masciadrelli, 2004). When adolescents perceive their parents as interested and involved in their lives, they are more likely to listen to and process their parents' opinions and advice. Furthermore, this perception often leads to conscious decision-making, careful not to disappoint their parents (Crosnoe, Erickson, & Dornbusch, 2002; Hirschi, 1969). Parental involvement may promote adolescents' processing and internalization of behavioral norms for adults, providing support for resisting the urge to cave into negative pressures (Hawkins et al., 1992).

Studies have examined risk-related influences of sociodemographic factors and poverty finding that these risk factors only impact children through the parent-child relationship. In other words, the influence of poverty and sociodemographic risk on youth outcomes occur through the impact they have on the parent which is translated into the parent-child relationship (Hill, 2001; Pianta et al., 1991;). Negative parent-adolescent relationship quality has been identified as a risk factor for adolescent aggression and antisocial behavior (Dekovic, Jassens, & Van As., 2003). Management of emotional responses, belief and validation in the child's experience, and toleration of the child's

affect are the main elements for appropriate caregiver responses to their child's traumatic experiences. When these elements are not incorporated, children are more likely to avoid or suppress their own emotions (Deblinger & Heflin, 1996), potentially increasing the likelihood for aggression and antisocial behavior.

Teacher-student relationships. Teacher-student relationships are important in shaping behavior as students spend much of their time at school when they are not at home (Hinshaw & Lee, 2003; Patterson, 1982). Positive teacher-student relationships are indicative of positive student outcomes. Middle school students with positive perceptions of their school environment and positive teacher-student relationships are more likely to have higher GPAs, more classroom motivation, and increased school engagement (Davis, 2006; Furrer & Skinner, 2003). In contrast, conflict between teachers and students during school transitions contributes to increased rates of externalizing behavior. This increased rate also occurs at a faster speed and takes place above and beyond initial internalizing behavior levels and negative parenting. Teacher-student closeness significantly decreases externalizing behavior in youth, especially for school-aged children with high levels of externalizing behavior problems (Silver, Measelle, Armstrong, & Essex, 2004). Davis (2006) found higher reports of close teacher-student relationships when middle school students had higher levels of academic motivation, social competence, student identity formation, and self-regulation.

Adolescent girls more frequently report higher levels of school belonging (Diaz, 2005) and more positive perceptions of teachers than boys (Reuger, Stiller, & Lynch, 2010; Wentzel, Battle, Russell, & Looney, 2010). Teachers also report more positive relationships with girls than boys as early as preschool (Ewing & Taylor, 2009).

However, despite these gender differences, the teacher-student relationship is more important for boys' educational attainment (Furrer & Skinner, 2003). This relationship is also critical for students from impoverished neighborhoods and students with low parental education levels (Olsson, 2009). Positive student-teacher relationships are less common for racial minority and low-income school-aged children (Hamre & Pianta, 2001), which could contribute to academic achievement disparities.

School connectedness. School connectedness is defined as students' perceptions of closeness with others at school and belonging to the school (Barber & Olsen, 1997; Brookmeyer, Fanti, & Henrich, 2006). Students' perceptions are shaped by school climate and teacher-student relationships among other things. A positive school climate is described as shared attitudes, beliefs, and values that shape the interactions among administrators, students, and teachers while setting the guidelines and expectations for appropriate behavior. School climate is the result of social interactions between teachers and students, students and administration, and administration and teachers (Koth et al., 2008). This positive environment has been shown to influence academic achievement and school performance (Griffith, 1999). Experiences at school that are stressful or traumatic largely account for the disconnect from school (Glover, Burns, & Butler, 1998).

Studies have found associations between school connectedness and lower levels of externalizing behavior during adolescence (Barber & Olsen, 1997; Brookmeyer, Fanti, & Henrich, 2006). Loukas, Roalson, and Herrera (2010) examined main and interaction effects of effortful control, negative family relationships, and school connectedness to early adolescent conduct issues in a sample of sixth and seventh grade adolescents. Their results found that school connectedness decreased later conduct issues after controlling

for effortful control, family relationships, gender, and baseline conduct issues. High levels of school connectedness also buffered the negative effects of poor family relationships for girls and boys. Furthermore, high levels of school connectedness offset negative effects of having low levels of effortful control in girls.

Previous research is indicative of positive relationships between school connectedness and educational attainment. Niehaus, Rudasill, and Rakes (2012) conducted a longitudinal study with a sample of sixth grade students in high poverty neighborhoods to examine the association between school connectedness and educational outcomes. Their results showed that perceptions of school support were lower among sixth graders; however, sixth graders who reported low decline or growth in school support had higher levels of academic achievement by the end of sixth grade. Boys in sixth grade were identified to be at increased risk for lower school support, higher discipline referrals, and lower GPAs.

Theoretical Framework

This study was guided by the life course theory and incorporated a resilience lens with an ecological perspective similar to Fraser's work in 1997.

Life course theory. The life course theory connects familial factors with individual development, emphasizes the role of time, and posits that change is influenced by historical period, cohorts, and age (Elder, 1998). The term "theory" is meant to describe more of a theoretical framework than a single idea, per se. Three assumptions are made: developmental processes are inevitable, individual change and development impacts the family, and time is multidimensional (White, Klein, & Martin, 2014). Finally, the life course theory incorporates concepts such as human agency, transitions (Elder,

1998), and events (White et al., 2014). Human agency is ability of each individual to determine their life course through their behaviors and how they approach their developmental tasks. A developmental task is a responsibility during a specific period of life (White et al., 2014). For adolescents, a developmental task would be to receive passing grades. When these developmental tasks are not achieved, an individual may experience more difficulty accomplishing developmental tasks later in life (Magrabi & Marshall, 1965). Making the change from one developmental stage to the next, in sequence with social norms, is transitioning (Elder, 1998). One example of a transition is graduating high school. Following graduation, an individual is no longer in school and is transitioning into the next phase of their life such as going to college or getting a full-time job. This is a gradual transition. Transitions can also be abrupt (Martin, Schoom, & Ross, 2008) such as getting suspended from school. Events occur in chronological order and are categorized as normative or non-normative. Normative events during adolescence are those that are expected by societal norms and include high school graduation. In contrast, a non-normative event is not expected (White et al., 2014) such as joining a gang.

Risk and resilience from an ecological perspective framework. Fraser (1997) defines concepts of resiliency and risk. Resiliency factors are contextual or personal attributes that reduce the likelihood of negative outcomes from risk factors. Risk factors are individual characteristics or environmental contexts that increase the likelihood of developing various problems such as substance abuse. Because childhood problems are manifested by a multitude of causal factors, taking an ecological perspective to examine and understand early life stress in adolescents requires a multifactorial and non-linear model highlighting the issue and preventative measures. In other words, several

individual-level (e.g., personality) and contextual-level factors (e.g., environment) interact to manifest adverse outcomes in youth. When examining trajectories of externalizing behavior in youth, it is critical to assess how child- and context-specific influences impact development together (Bronfenbrenner, 1979; Dodge & Pettit, 2003; Rimm-Kaufman & Pinata, 2000). Ecological-focused theories contain several key constructs. First, the child- and context-specific developmental influences have unique and interactive effects. Next, numerous contexts and relationships within them had developmental influences on youth. Then, the contextual characteristics impact changes over time. Finally, risks are child-specific or relation-specific, are shaped early in life, and may influence the development of maladaptive life trajectories (Ladd, 1996).

Summary, Research Goals, and Hypotheses

Much of extant literature examines ELS during prenatal development through late childhood and adulthood. ELS in adolescence research has been linked to negative relationships between and protective factors for ELS and internalizing behavior (e.g., depression, anxiety, PTSD); however, less is known about the relationship between ELS and externalizing behavior with regard to protective factors. The proposed study seeks to examine school connectedness and teacher-student relationship quality during seventh grade as a protective factor for negative anger expression and substance use among youth with early life stress. While several studies have examined the relationship among school connectedness and mental health outcomes during adolescence, this study adds to the extant literature by examining school protective factors while controlling for parental involvement and parental knowledge. Furthermore, this study will contribute to the field by identifying implications for professionals in the field of human services, programming

needs geared towards positive outcomes for adolescents, and policy recommendations for education.

To fulfill the purpose of the study, three primary research goals will be addressed.

The ***first research goal*** is to explore the prevalence of ELS among urban seventh grade students by addressing the following two hypotheses:

1. By seventh grade, more than 50% of youth will have been exposed to at least one early life stressor.
2. By seventh grade, more than 25% of youth will have experienced more than one early life stressor.

The ***second research goal*** is to examine externalizing behavior outcomes related to anger expression and antisocial behavior among youth with higher numbers of ELS.

This research goal has two related hypotheses:

3. ELS predict negative anger expression in adolescents.
4. ELS predict antisocial behavior in adolescents.

The ***third research goal*** is to identify school protective factors for adolescents who have experienced ELS and lack parental protective factors. This hypothesized model is displayed in Figure 1. The two related hypotheses are as follows:

5. After controlling for parental protective factors, school connectedness will moderate the relationship between ELS and anger expression and antisocial behavior.
6. After controlling for parental protective factors, positive teacher-student relationships will moderate the relationship between ELS and anger expression and antisocial behavior.

Method

The current study uses data from the Pathways to School Success (PaSS) study conducted by scholars at Oklahoma State University (OSU). The PaSS study, approved by OSU's Institutional Review Board (IRB), is a longitudinal cohort study that was developed to identify strengths and limitations related to school attrition among urban adolescents. A highly diverse, urban school district in south central United States was recruited to participate. Schools within the district which included a seventh-grade were selected and all seventh-grade students were asked to participate. Participants of the PaSS study are all seventh-grade adolescents who did not opt-out of the study or have a severe, limiting cognitive impairment.

Sample

Data was collected from 1832 (50.3% female, 49.7% male) seventh-grade adolescents. Participant ages were between 12 and 15 ($M=13.1$, $SD=.66$). The sample identified as Latino (39.0%), Black (28.9%), White (19.9%), Native American/Alaska Native (4.3%), Asian/Pacific Islander (3.9%), and Other (4.0%).

Measures

Early life stressors (ELS). A 16-item scale was used to assess exposure to ELS. The scale was created using items based on research from the Juvenile Victimization Questionnaire (JVC; Hamby, Finkelhor, Ormrod, & Turner, 2004), Adverse Childhood Experiences (ACEs; CDC, 2016), and National Survey of Children's Exposure to Violence (NatSCEV II; Finkelhor, Turner, Shattuck, Hamby, & Kracke, 2015) such as *"Have you ever been bullied at school?"*, *"Have you ever been in a natural disaster in which someone was severely injured or died?"*, and *"Does your mother/father/sibling*

have a problem with alcohol?" Each statement was coded with binary data (0=*No*, 1=*Yes*). Scores on this measure range from 0-16, with higher scores indicating greater number of ELS. The Cronbach's alpha for this measure was .76.

Teacher-student relationship quality. Teacher-student relationships were assessed using a 4-item scale, developed for the current study, which had a Cronbach's alpha of .80. Each item used binary (0=*No*, 1=*Yes*) response data and was derived from research by McNeely, Nonnemaker, and Blum (2002). The items include the following statements: *my teachers really care if kids succeed in school*, *my teachers treat student fairly*, *a teacher has really helped me do well in school*, and *a teacher has really motivated me to stay in school*. The summation of scores ranged from 0 (lowest level of teacher-student relationship quality; TSRQ) to 4 (highest level of TSRQ).

School connectedness. A 6-item measure was created to assess school connectedness using binary (0=*No*, 1=*Yes*) data. Items were included based on research by McNeely et al., (2002). Sample items included "*I feel close to people at my school*," and "*I feel safe at school*." The six items were summed to create a measure with a possible range from 0 (lowest level of school connectedness) to 6 (highest level of school connectedness). The Cronbach's alpha for this measure was .71.

Anger expression. Anger expression was assessed using a 3-item measure that used items retrieved from the Anger Expression Scale for Children (AESC). Steele, Legerski, Nelson, and Phipps (2009) developed the Anger Expression Scale for Children (AESC) and tested initial validity on a large sample of healthy children and children with cancer. The model is comprised of four factors: anger in (hostility), anger control, anger expression, and trait anger. Their study supported the model and provided support for the

model's convergent validity. The AESC used a 3-point scale to determine the frequency of anger expression and control (0=*Rarely*, 1=*Sometimes*, 2=*Often*). Sample items in the anger expression measure include statements from the anger expression subscale, such as "*I slam doors when I am mad,*" and "*I say mean things when I am mad.*" Scores range from 0 (never expresses anger) to 6 (often expresses anger). The Cronbach's alpha for the measure was .68.

Antisocial behavior. To assess antisocial behavior, a 7-item measure was developed based on Crosnoe et al. (2002)'s adolescent deviance measure and the National Youth Survey (NYS; Elliot, Huizinga, & Ageton, 1985). The antisocial behavior measure had a Cronbach's alpha of .71 and used binary (0=*No*, 1=*Yes*) data to determine whether the participant has engaged in the following within the last year: *skipped school*, *smoked a cigarette*, *smoked marijuana*, *drank alcohol*, *been in a physical fight*, *brought a weapon to school*, or *belong to a gang*. Scores range from 0 (no engagement in antisocial behavior within the last year) to 7 (engaged in all measured antisocial behaviors within the last year).

Parental involvement. Parental involvement was assessed using a continuous measure that contains 15 items regarding parental involvement, examining mother and father together and separately. Items are reflective of parental involvement characteristics outlined by Crosnoe et al. (2002) as well as Day and Padilla-Walker's work in 2009. Sample items include "*My parents know what I think and feel,*" "*Mom encourages good grades,*" "*Dad discusses my grades,*" and "*My mom/dad are a part of my life.*" Scores range from 0 to 15 with lower scores indicating lower levels of parental involvement. The Cronbach's alpha for this measure was .81.

Gender. Participants were asked to self-report their gender (0=*Male*, 1=*Female*).

Race/ethnicity. Adolescents self-reported their race/ethnicity. Due to the low proportion of Asian, Native American, and Other race/ethnicity participants, race/ethnicity was dummy coded into three separate variables to create the following three categories for analysis: Black=1, otherwise=0; Latino=1, otherwise=0; and White=1, otherwise=0.

Procedure

Over a two-week period in May of 2009, data were collected from 12 schools within an urban school district. All students in seventh grade within the district were recruited to participate in the study with permission from each school's principal. Students were sent home with permission forms for their parents to review regarding the study, which informed parents to only return the permission form if they did not want their child to participate in the study. Data collection took place in regular classrooms during one class period. On the day of data collection, the response rate was approximately 83%. Students were asked to self-report sociodemographic variables, anger expression, antisocial behavior, parental involvement, school connectedness, and teacher-student relationship quality among other variables regarding school attrition. Instead of providing students' names, ID numbers were collected. Prior to beginning the survey, researchers discussed the approved assent forms with the participants. Students were informed of their voluntary participation and that they may withdraw at any time. Furthermore, participants were also told they could refuse to answer any questions that they did not feel comfortable answering. Each of the questions were read aloud to the students and surveys took approximately 35 minutes to complete. Participants received

debriefing and \$5 for their participation. Data was entered into a secure database and uploaded into IBM SPSS statistical software for analyses.

Analytic Approach

First, zero-order correlations were run for all major study variables. Then, reliability analyses were conducted to ensure reliability of the ELS, anger expression, antisocial behavior, parental involvement, school connectedness, and TSRQ measures and check for violation of assumptions for statistical tests. Next, descriptive and frequency statistics were computed to assess means, standard deviation, and ranges of all major study variables.

Hypotheses 1 and 2 were addressed by running descriptive statistical analyses with frequencies for ELS. Hypothesis 3 was examined using a linear regression regressing anger expression on ELS. A linear regression was also conducted to examine whether ELS explained the variance in antisocial behavior to test hypothesis 4. To address hypothesis 5, a binary logistic regression was conducted that regressed educational attainment on ELS. Hypothesis 6 was tested using a binary logistic regression with school connectedness as a moderator regressing anger educational attainment on ELS while controlling for parental involvement. Then, a linear regression was conducted to regress anger expression and antisocial behavior on ELS. Hypothesis 6 was addressed using a binary logistic regression that regressed educational attainment on ELS while controlling for parental involvement and examining teacher-student relationship quality as a moderator. Then, a linear regression examined the moderating role of teacher-student relationship quality while regressing anger expression antisocial behavior on ELS and

controlling for parental involvement. Gender and racial/ethnic differences for exposure to ELS were also explored using frequency statistics and Chi-square tests.

Results

Preliminary analyses were conducted to test for violation of assumptions for linear regression. Assumptions of normality, linearity, and homoscedasticity were not violated. Table 1 presents zero-order correlations of the major study variables. The correlation between early life stressors (ELS) and antisocial behavior was positive ($r=.59$, $p<.001$). Similarly, ELS was also positively correlated with anger expression ($r=.39$, $p<.001$), and Black ($r=.14$, $p<.001$). ELS was negatively correlated with teacher-student relationship quality (TSRQ; $r=-.24$, $p<.001$), school connectedness ($r=-.27$, $p<.001$), parental involvement ($r=-.41$, $p<.001$), and Whites ($r=-.10$, $p<.001$). Antisocial behavior was negatively correlated with TSRQ and school connectedness ($r=-.28$, $p<.001$ and $r=-.24$, $p<.001$, respectively). Furthermore, antisocial behavior was negatively correlated with female and Whites ($r=-.12$, $p<.001$ and $r=-.11$, $p<.001$, respectively). A positive correlation was found between antisocial behavior and anger expression ($r=.40$, $p<.001$). Anger expression was also positively correlated with female and Black ($r=.13$, $p<.001$ and $r=.09$, $p<.001$, respectively).

Descriptive Statistics

Table 2 shows the descriptive statistics (Cronbach's alpha values, number of cases, percentages, means, standard deviations, minimum and maximum values of variables, and skewness) for all the major study variables. ELS (predictor), TSRQ (moderator), school connectedness (moderator), antisocial behavior (outcome), anger expression (outcome), and parental involvement (control variable) were all continuous

variables. ELS had a mean score of 6.06 (Range = 0-16). TSRQ ranged from 0 to 4 with a mean score of 3.03 (SD = 1.20). School connectedness and anger expression both ranged from 0 to 6 with mean scores of 4.29 and 2.58, respectively. Antisocial behavior had a mean score of 1.54 ranging from 0 to 7. Finally, parental involvement ranged from 0 to 15 with a mean score of 11.45 (SD = 3.23). Frequency statistics were also computed for gender and race/ethnicity. The sample was fairly split among males (50.4%) and females (49.6%). The largest ethnic group was Latino, comprising 44.4% of the sample. Black ethnic group was the second largest (32.9%), followed by White (22.7%). To address the study's hypotheses, frequency statistics were also computed to explore the prevalence of ELS. Of the sample, 96.3% of youth reported exposure to at least one ELS and 90.7% reported exposure to two or more ELS.

Table 3 displays frequency statistics of ELS by race/ethnicity and gender as well as significant group differences. Racial/ethnic and gender differences were explored to identify which ELS are most prevalent among whites, blacks, and Latinos. Frequency statistics identified that the most common early life stressor experienced by all groups as having been discriminated against due to race/ethnicity, gender, or socioeconomic status. Chi-square tests were performed to examine group differences among white, black, and Latino males. Then Chi-square tests were performed to examine group differences among white, black, and Latino females. Family discrimination and been bullied had significant group differences between white and black males ($\chi^2=6.11, p<.05$ and $\chi^2=23.75, p<.001$, respectively), white and Latino males ($\chi^2=31.14, p<.001$ and $\chi^2=8.92, p<.01$, respectively), and black and Latino males ($\chi^2=11.65, p<.01$ and $\chi^2=6.41, p<.05$, respectively). Significant group differences were found among white and black males

($\chi^2=23.45, p<.001$) and black and Latino males ($\chi^2=13.90, p<.001$) for having witnessed a family member being severely abused. The same was true for being pressured to have sex (white and black males $\chi^2=14.46, p<.001$; black and Latino males $\chi^2=6.63, p<.05$). Also among males, significant group differences were between whites and blacks ($\chi^2=17.24, p<.001$) as well as whites and Latinos ($\chi^2=10.89, p<.01$) for having a family member or loved one imprisoned or taken away. The same was true for having witnessed or heard of a family member being mugged (white and black males $\chi^2=9.48, p<.01$; white and Latino males $\chi^2=12.46, p<.001$), neighborhood violence (white and black males $\chi^2=20.64, p<.001$; white and Latino males $\chi^2=21.80, p<.001$), and neighborhood gangs (white and black males $\chi^2=18.14, p<.001$; white and Latino males $\chi^2=14.30, p<.001$). Between white and Latino males, significant group differences were seen for having experienced a natural disaster which resulted in loss ($\chi^2=5.42, p<.05$), been assaulted ($\chi^2=5.91, p<.05$), and been threatened ($\chi^2=4.97, p<.05$). For family drug use, significant group differences were seen among black and Latino males ($\chi^2=4.36, p<.05$).

Among females, significant group differences were identified among blacks and Latinos for having been threatened ($\chi^2=19.98, p<.001$), assaulted ($\chi^2=25.38, p<.001$), exposed to a family member being abused ($\chi^2=27.64, p<.001$), exposed to neighborhood violence ($\chi^2=8.52, p<.05$), exposed to neighborhood gangs ($\chi^2=12.93, p<.001$), living with a family member who has a problem with drugs ($\chi^2=9.68, p<.01$), separated from a dependent or loved one for more than a few days ($\chi^2=15.78, p<.001$) and pressured to have sex ($\chi^2=23.25, p<.001$). Also among females, significant group differences were identified between whites and blacks for having experienced a family member being imprisoned or taken away ($\chi^2=37.81, p<.001$), someone being mugged ($\chi^2=9.48, p<.01$), a

family member being severely abused ($\chi^2=23.45, p<.001$), neighborhood violence ($\chi^2=14.29, p<.001$), discrimination due to gender, race/ethnicity, or socioeconomic status ($\chi^2=15.22, p<.001$), a family member being discriminated against ($\chi^2=4.14, p<.05$), neighborhood gangs ($\chi^2=27.97, p<.001$), being bullied ($\chi^2=10.08, p<.001$), and pressure to have sex ($\chi^2=6.42, p<.05$). Significant group differences were identified between white and Latino females. These were seen in items regarding having had a family member imprisoned or taken away ($\chi^2=10.98, p<.01$), been assaulted ($\chi^2=15.97, p<.001$), been threatened ($\chi^2=10.13, p<.01$), seen someone mugged ($\chi^2=12.46, p<.001$), been separated from a dependent or loved one for more than a few days ($\chi^2=13.52, p<.001$), had a family member discriminated against ($\chi^2=18.86, p<.001$), and gangs in the neighborhood ($\chi^2=5.34, p<.05$).

Regression Analyses

Table 4 presents results of a linear regression analysis which was conducted which examined teacher-student relationship quality (TSRQ) and school connectedness as moderators while regressing anger expression on ELS and controlling for gender, race/ethnicity, and parental involvement. ELS was entered in Model 1 and was a statistically significant predictor for anger expression, explaining 17% of the variance ($F=252.76, R^2=.17, p<.001$). For every unit increase in ELS, predicted anger expression increased by .21 units ($B=.21, p<.001$). Model 2 contained direct effects of TSRQ and school connectedness. This model was statistically significant ($F=89.77, p<.001$) explaining an additional 1% of the variance; however, neither TSRQ nor school connectedness variables were statistically significant ($p=.05$ and $p=.07$, respectively). Gender, race/ethnicity (Black and Latino), and parental involvement were entered in

Model 3 as control variables. Gender and parental involvement were statistically significant, $p < .001$ ($\beta = .14$ and $\beta = -.11$, respectively). For every unit increase in parental involvement, anger expression decreased by .06 units ($B = -.06$, $p < .001$). Race/ethnicity was not a statistically significant predictor of anger expression. Model 3 explained an additional 3% of the variance in anger expression ($F = 47.67$, $R^2 = .21$, $p < .001$). Finally, the interaction effect between TSRQ and ELS and the interaction effect between school connectedness and ELS were entered in Model 4. Statistical significance was not found in Model 4 ($p = .30$), indicating that neither TSRQ nor school connectedness were moderators of anger expression for youth who have experienced ELS. In Model 4, ELS, gender, and parental involvement were statistically significant predictors of anger expression ($p < .001$). The model as a whole explained 21% of the variance in anger expression.

Using linear regression analysis, TSRQ and school connectedness were examined as moderators while regressing antisocial behavior on ELS and controlling for gender, race/ethnicity (Black and Latino), and parental involvement. ELS was entered in Model 1 and explained 27% of the variance in antisocial behavior ($F = 436.97$, $R^2 = .27$, $p < .001$). For every unit increase in ELS, antisocial behavior increased by .25 units ($B = .25$, $p < .001$). Direct effects of TSRQ and school connectedness were entered in Model 2 and explained an additional 2% of the variance in antisocial behavior ($F = 163.06$, $R^2 = .29$, $p < .001$). TSRQ, but not school connectedness, was statistically significant ($\beta = -.11$, $p < .001$) and predicted a .22 unit decrease in antisocial behavior for every unit increase in TSRQ ($B = -.22$, $p < .001$). Model 3 contained control variables (gender, race/ethnicity, and parental involvement), explaining 6% of the variance above and beyond ELS, TSRQ, and

school connectedness ($F=90.54$, $R^2=.35$, $p<.001$). In Model 3 Black was not statistically significant; however, gender, Latino, and parental involvement were statistically significant at $p<.001$ ($\beta=-.09$, $\beta=.13$, and $\beta=-.20$, respectively). For every unit increase in parental involvement, antisocial behavior decreased by .11 units ($B=-.11$, $p<.001$). The interaction effect between TSRQ and ELS and the interaction effect between school connectedness and ELS were entered in Model 4, explaining an additional 0.4% of the variance in antisocial behavior ($F=71.42$, $p<.05$). In Model 4, TSRQ was a statistically significant moderator for antisocial behavior ($\beta=-.07$, $p<.05$). For every unit increase in TSRQ, antisocial behavior decreased by .03 units ($B=-.03$, $p<.05$). School connectedness was not statistically significant. The model as a whole explained 35% of the variance in antisocial behavior, ($R^2=.35$). These results are shown in Table 5.

Discussion

Stressors experienced in early life have the potential of developing negative trajectories for youth (Briere & Elliot, 2003; Finkelhor et al., 2013). Particularly during adolescence, vulnerability to negative outcomes is heightened due to rapid changes in brain development (Cook et al., 2005; Shonk & Cichetti, 2001). As ELS are commonly experienced by youth, the need for protective factors is high. Past studies show that positive parent-child relationships are important (CDC, 2016; Wall et al., 1999); however, less is known about relationships and environments outside the home that may serve as a protective factor for youth regardless of their home relationships. The purpose of the current study is to identify whether ELS experienced by adolescents predict two forms of externalizing behavior: anger expression and antisocial behavior. Furthermore,

the current study identifies protective factors outside of the home environment for adolescent victims of ELS.

First, the study explored the prevalence of ELS which is found to be significantly higher than hypothesized based on previous research (CDC, 2016; Finkelhor et al., 2013). With over 90% of seventh graders having experienced two or more ELS, hypotheses 1 and 2 are supported. However, the percentages of youth having been exposed to two or more ELS were much higher than anticipated. This could be explained by our ELS scale's inclusion of potentially traumatic events such as *separation from a loved one* and *been in a natural disaster*. Discrimination due to race/ethnicity, gender, or socioeconomic status was the most common early life stressor experienced by seventh-grade adolescents. Among males, significant group differences were identified for ELS between whites and blacks, whites and Latinos, and blacks and Latinos such as family discrimination and having been bullied. For females, these same racial differences were identified for living in a neighborhood with gangs. These results could be explained by the high number of students from poverty and ethnically diverse backgrounds within the population sample.

In support of hypotheses 3 and 4, regardless of their level of parental involvement, youth with higher numbers of ELS are significantly more likely to externalize their anger and engage in antisocial behavior. This could be explained by the traumatic effect that ELS have on adolescents. Although parental involvement may be able to buffer the effects of trauma on externalizing behaviors (Hinshaw & Lee, 2003), certain negative outcomes resulting from exposure to potentially traumatic events may be unavoidable due to genetic predispositions (Andersen et al., 2002).

Surprisingly, neither teacher-student relationship quality nor school connectedness are predictive of anger expression or acted as a protective factor of the effects of ELS on anger expression outcomes, failing to support hypothesis 5. These results also contrast work by Silver et al., (2005) who found that teacher-child closeness reduced the likelihood of externalizing behavior. One possible explanation for this is potentially low levels of anger expression at school with presence of supportive teacher-student relationships. Students with positive relationships with their teachers may be less likely to outwardly express their anger at school than they do at home. Partially supporting hypothesis 6, antisocial behavior was predicted by and moderated by teacher-student relationship quality but not school connectedness. These findings are not consistent with Brookmeyer et al., (2006) and Loukas et al., (2010), who identified a relationship between school connectedness and a reduction in conduct problems. Possible rationale for the inconsistent findings could be that youth with numerous exposures to ELS may perceive these adverse experiences which include exposure to substance abuse and other antisocial behaviors as common (Santelli et al., 2004).

Regardless of exposure to ELS, gender significantly predicts anger expression and antisocial behavior in opposing directions. Being female positively predicts anger expression, but negatively predicts antisocial behavior. Although anger expression and antisocial behavior are both classified as externalizing behaviors, they are expressed differently. Research indicates girls are more likely to express their emotions while boys are more likely to engage in risky behavior (Ducci et al., 2009). Interestingly, both comparison ethnic groups (black and Latino) are predictive of antisocial behavior, while black is predictive of anger expression; however, Latino is not a predictor for anger

expression. This could be explained by Latino cultural influences such as “respeto,” or respect for family (Calzada, Fernandez, & Cortes, 2015). Expressing anger may be discouraged in the home, requiring higher levels of emotion regulation by Latino youth.

Implications

The current study’s results have several implications for adolescent health and education professionals. Due to the overwhelming prevalence of ELS experienced by adolescents, protective factors need to be in place for purposes of reducing the impact of ELS on youth development. More specifically, protective factors outside of the home need to be identified because many ELS occur within the home environment (CDC, 2016). Although the current study was unable to find significance in school connectedness as a moderator for ELS impacting antisocial behavior and anger expression outcomes, relationships formed within the school may be especially critical protective factors for adolescents. In addition to development of healthy relationships outside of the home, a school environment which is sensitive to potential trauma experienced by its students could create a supportive learning environment that adolescents feel comfortable in. In addition to a culturally sensitive and trauma-informed environment, implementation of social-emotional programs which teach students self-regulation skills could also help to deter the effects of ELS in this vulnerable population.

Although the current study did not identify school connectedness as a moderator for externalizing behaviors, it is possible that an indirect effect exists. Specifically, the school environment may be more important for teachers to feel supported in their work. A supportive work environment may translate into happier teachers who take pride in their job (Griffith, 1999; Koth, et al., 2008). In turn, these supported teachers may be

more likely to develop positive relationships with their students which encourage trust and respect. Gaining youths' trust could allow them to discuss their experiences with their teacher to provide a better understanding of their background. If teachers know and understand their students outside of the classroom, additional supports could be offered for these youths with high levels of exposure to ELS.

Strengths and Limitations

A few strengths and limitations of the study are noted. Strengths of the study include the incorporation of potentially traumatic events in addition to items from the ACEs questionnaire. With purposes of avoiding participation bias, the current study used passive consent. This means that study participants had to gain parental permission if they wanted to opt-out of the study, which should eliminate parental involvement bias in the sample selection. In addition to the heavily Latino sample, the current study was conducted outside of urban areas normally populated with Latinos such as New York and Los Angeles. The study was limited by its measure of teacher-student relationship quality and school connectedness. Neither measure fully captured the characteristics that make up each variable. For example, teacher-student relationship quality should also assess trust between the dyad and school connectedness should assess what makes adolescents feel connected to their school.

Future Directions

The current study found a higher prevalence of ELS than previous scholars (e.g., CDC, 2016; Finklehor et al., 2013; Finkelhor et al., 2015) shedding light on this public health issue and the dire need for protective factors; especially for adolescents who are more vulnerable to internalizing and externalizing behavioral problems (Shonk &

Cicchetti, 2006). Expanding on early life adversity studies, consideration of potentially traumatic events that are not grouped into ACEs is critical to explaining adolescent outcomes (Enoch, 2011) as their developmental period comes with heightened vulnerability to adverse mental health outcomes (Caspi et al., 2002).

Although TSRQ was a statistically significant moderator for antisocial behavior, the amount of variance that TSRQ explains in antisocial behavior is very small which could be explained by the developed measure. Therefore, it may still be meaningful to explore the interaction between TSRQ and ELS for adolescents. Future research may benefit from assessing more aspects of teacher-student relationships which impact the overall quality of the relationship. Furthermore, assessing other qualities within the school context (e.g., supportive climate, cultural sensitivity, availability of resources, implementation of trauma-informed programs) which buffer the impacts of ELS.

Conclusion

Especially for youth with exposure to ELS, trauma-informed practices are critical for ensuring that children are not further affected in the school environment. These trauma-informed approaches should include cultural sensitivity and an understanding of trauma's impact on youths. Furthermore, curriculum which addresses other antisocial behaviors, such as gang involvement and physical violence, in school could provide adolescents necessary tools for avoiding succumbing to negative peer and adult pressure. Although TSRQ moderates antisocial behavior, the moderation effect is not present for anger expression. This may also be explained by the content that students are learning at school. Many schools implement anti-drug use programs and/or teach students about the danger of illicit substance (UNICRI, 2003); however, appropriate expression of emotions

may not be included in school curriculum or programming. Implementation of social-emotional programs in schools could offer students needed tools for regulating emotions and increasing self-management in the classrooms.

While connection to an environment may be important, more often than not, it is the people that make the place. In other words, the environment is a product of the people within it (Schneider, 1987). During adolescence, feeling part of school often requires having friends at school and engaging in social activities which provide opportunities for peer engagement. Commonly, adolescents engage in antisocial behavior with their friends and many of the items measuring school connectedness are regarding feeling close to people at school and feeling a part of school. These items are likely to warrant a “yes” response by youth who have friends at school and opportunities to engage with them. This suggests that supportive relationships may have greater impact on outcomes than feelings of connectedness to a community or environment as people make up the environment. As argued by Bowlby (1988), positive attachment bonds are critical for healthy development and increasing the likelihood for positive outcomes. Supportive relationships offer encouragement; and for adolescents, having a supportive relationship with an adult can offer healthy social learning opportunities (Arslan, 2009; Furrer & Skinner, 2003). These youths then, may even be inspired to help others as they’ve been helped through supportive relationships.

Exposure to ELS can lead to internalizing and externalizing behaviors, especially in adolescents who are at increased vulnerability of negative outcomes due to developmental transitions (Shonk & Cicchetti, 2001). Coupled with this heightened vulnerability, adolescents’ exposure to ELS is fairly common (CDC, 2016). The current

study shows that more than 90% of seventh-graders have been exposed to at least two ELS. This percentage is much higher than many other studies have cited (e.g., CDC, 2016; Finkelhor et al., 2013) which is alarming. Furthermore, many ELS are experienced within the home environment (e.g., parental abuse, family drug use, separation from a loved one; CDC, 2016) highlighting the necessity of protective factors for adolescents. Of importance are protections in place outside of the home, such as within the educational environment because youths spend much of their time at school when they are not home (Hinshaw & Lee, 2003; Patterson, 1982).

While offering critical insights to the effects of ELS on externalizing behavioral outcomes, the current study identifies positive teacher-student relationships as a critical protective factor for youth who have experienced high levels of ELS. Based on the study's findings, creating a warm and supportive environment for teachers to work may indirectly, positively impact youth who have experienced ELS. In addition, obtaining critical information about students' backgrounds can aid in the teacher's understanding of their classroom dynamics and allow teachers and other school staff to provide adequate resources for their students. Due to many ELS occurring within relationships within the home environment, importance lies in creating supportive environments for adolescents and identifying other protective factors outside the home.

CHAPTER III

CONCLUSION

Study Summary

Much literature on early life adversity and trauma identifies negative mental health outcomes (Briggs-Gowan, et al., 2010), especially for youth who are more susceptible to trauma exposure due to changes in the brain during adolescence. While several scholars have highlighted the importance of positive parent-child relationships, relationships and experiences within the home may be the source of trauma. For these youths who are lacking positive parent-child relationships, importance lies in identifying protective factors outside of the home. In addition to exploring the predictive ability of early life stressors (ELS) for anger expression and antisocial behavior, the current study sought to identify protective factors outside of the home environment for youth who have experienced ELS.

As expected, ELS were prevalent among urban seventh grade adolescents. However, discovering more than 96% of youth had been exposed to at least one early life stressor was not expected. This high percentage sheds light on the need for expanded research on trauma and adversity to include an array of potentially traumatic

events. In addition to high prevalence of ELS, anger expression and antisocial behavior were predicted by exposure to ELS. In other words, the more ELS experienced by youth, the higher their likelihood of expressing their anger in a negative way and engaging in antisocial behavior. These adverse outcomes highlight the importance of protective factors. Being that many ELS occur within the home context, protective factors outside the home may be especially critical for youth with high levels of exposure to ELS.

The current study examined teacher-student relationship quality and school connectedness as moderators, or protective factors, for anger expression and antisocial behavior within youth who have been exposed to ELS. As expected, teacher-student relationship quality was found to moderate the impact of ELS on adolescent antisocial behavior. This finding is critical to the fields of education and adolescent risk and resilience, highlighting the ability of the schools to protect against antisocial behaviors for youth who have experienced early life adversity. While results of the analyses did not identify school connectedness as a moderator for anger expression or antisocial behavior, teacher-student relationship quality was found to be a protective factor for antisocial behavior. As the research hypotheses predicted both school connectedness and teacher-student relationship quality to moderate anger expression and antisocial behavior, these results were not as expected. While school connectedness may not directly impact student outcomes, the school environment may be especially important for teachers to be able to develop positive relationships with their students. Anger expression was not moderated by either school connectedness or teacher-student relationship quality and could be explained by relatively low levels of anger expression among the sample. It is possible that students exhibit lower levels of anger expression at school than at home when they

have high levels of school connectedness and positive teacher-student relationship quality.

Implications

Results of the current study have several major implications. Because adolescence is a highly sensitive period of development with enhanced vulnerability for ELS, lack of protective factors when faced with ELS can lead to antisocial behaviors such as substance use and intentionally damaging the property of others. Although parental involvement often serves as a protective factor for youth faced with adversity (CDC, 2016), ELS significantly predicted anger expression and antisocial behavior despite level of parental involvement. These findings are supported by (Moylan et al., 2010) and are important for family policy recommendations as youth who have experienced high numbers of ELS are at increased risk of externalizing behavior. These youths need additional supports in place to moderate the negative effects of ELS (Lupien et al., 2009).

At the school level, educating teachers and administration on the importance of cultural sensitivity and the impacts of ELS could lend to more mindful approaches to education. More specifically, trauma-informed practices and approaches to teaching and disciplinary actions should be implemented in schools to provide students with tools to achieve better outcomes instead of out-casting them and offering little opportunities for second chances. Schools could implement social-emotional programs to teach students how to self-regulate and self-manage their emotions, which dictate behaviors (Lench, Flores, & Bench, 2011). Additionally, assessing for ELS could benefit students and teachers as teachers would have a deeper understanding of the behaviors and affect displayed by the student. This deeper understanding may increase the quality of the

teacher-student relationship, lending to a lesser likelihood of the student to engage in antisocial behavior and greater likelihood of positive outcomes such as high school graduation (Davis, 2006; Furrer & Skinner, 2003).

Surprisingly, neither teacher-student relationship quality nor school connectedness protected against anger expression for youth who have experienced ELS. This may be explained; however, by differences in student's behavior at school and at home. Students with higher levels of school connectedness and positive teacher-student relationship quality may be less likely to negatively express their anger at school. Although school connectedness was not a significant protective factor for anger expression or antisocial behavior displayed by youth with early life stress, positive school climate may be more important for teachers to feel supported and for them to pass that support along to their students. Implementation of policies and practices targeting development and maintenance of a positive school climate are especially necessary for teachers to feel welcomed and appreciated on the job. This appreciation often translates into greater effort in the classroom and relationships with students (Griffith, 1999; Koth, et al., 2008). If teachers have a stable and supportive working environment, they are more likely to enjoy their job and put forth the effort to develop relationships with their students which offer additional encouragement and support both ways. A two-way benefit could also be provided by assessing for ELS experienced by students. Teachers would have a better understanding of their students' backgrounds and may be able to offer additional support and resources. Furthermore, students' behaviors would be more understood and students benefit from feeling supported and encouraged by their teachers.

Strengths and Limitations

Strengths of the current study include obtaining a large population sample of seventh grade, urban youth with high retention rates. This study was also conducted outside of the metropolitan areas which are normally heavily populated with Latinos (e.g., Los Angeles, Miami, New York). Unlike current literature, this study examined the moderation effects of teacher-student relationship quality and school connectedness on anger expression and antisocial behavior outcomes as a result of ELS while controlling for parental factors. Additionally, ELS were assessed using a 16-item measure which captures many of the circumstances and situations which could be perceived as traumatic by youth. However, this measurement has not been validated as included items were pulled from various literature (Briere & Spinazzola, 2005; Briggs-Gowan et al., 2010; Gallus et al., 2014).

The current study has some limitations which relate to measurement of the study's moderating variables and cross-sectional design. teacher-student relationship quality was assessed using a 4-item measure and school connectedness was assessed with a 6-item measure. Delving deeper into the characteristics which makeup teacher-student relationship quality and school connectedness would allow for more in-depth understanding of their ability to protect against ELS. In addition to enhancing measures for moderating variables, future research could benefit from longitudinal studies which more closely examine the impacts of ELS. While these stressors may not be able to be prevented, a closer examination which includes identification of risk factors for experiencing ELS as well as additional protective factors could lend to policy and practice recommendations for intervention. Furthermore, assessing whether youth who

have been exposed to social-emotional programs are less likely to externalize behavior is critical in program development and implementation in schools to reduce these adverse behaviors.

Future Directions

The current study adds to extant literature surrounding early life adversity and offers several suggestions for future research. Notably, teacher-student relationship quality moderated the effect of ELS on antisocial behavior in youth; however, despite statistical significance, practical significance is lacking. While teacher-student relationship quality may be especially important for students without positive relationships within their home environment, future research should examine specific characteristics of positive teacher-student relationship quality to determine which characteristics have stronger predictability of outcomes. These characteristics, when adopted by teachers, could lend to reduction in antisocial behavior in middle school youth. Future research could also benefit from a more thorough measure of school connectedness to include aspects of the school environment and items which appropriately identify specific factors for school connectedness (e.g., peer engagement, social opportunities, and staff; Barber & Olsen, 1997; Brookmeyer et al., 2006). This could guide education administration and policy in understanding how the school environment impacts student outcomes. Furthermore, future research could also benefit from asking about behavioral patterns at school separately from home behaviors.

Conclusion

The high prevalence of ELS, especially among seventh-grade youth, is a critical public health issue which needs to be addressed by identification and employment of

evidence-based protective factors. As identified by research, social relationships have been critical for moderating the effects of trauma when home relationships are lacking. Of high importance for youths, supportive teacher-student relationships buffer the impact of ELS by reducing the likelihood of exposed adolescents to engage in antisocial behaviors. Although school connectedness was not proven to moderate ELS in the current study, indirect effects may exist as a supportive school environment may increase positive perceptions of the work environment for teachers which is translated into happier teachers who are more likely to have healthy, positive relationships with their students.

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APPENDICES

APPENDIX A. Extended Review of Literature

Early Life Stress and Outcomes

With more than 1 billion children throughout the world reportedly victims of violence (CDC, 2016), ELS are a highly critical issue that remains to be addressed (Kolk, 2005). ELS are any childhood event that either directly or indirectly pose a perceived threat to the overall safety or well-being of an individual (Briere & Elliot, 2003; Enoch, 2011). ELS have been shown to have negative, lasting effects on stress responses, affective processing, and brain structure (Crowe & Blair, 2008), increasing the likelihood of poor mental health and educational attainment outcomes for adolescents.

People with early life stress are likely to have experienced multiple traumatic events. A review of literature by Cook et al. (2005) examined complex early life stress and its primary areas of impact on children exposed to traumatic events. Impact domains are identified as affect regulation, attachment, behavioral regulation, biology, cognition, dissociation, and self-concept. Affect regulation requires the ability to appropriately differentiate between and label states of arousal such as happiness and sadness. Children as young as 30 months of age who have experienced maltreatment have shown deficits in

their ability to appropriately identify arousal states in themselves and other individuals. Attachment is greatly compromised between children and their caregiver when their relationship is the source of the experienced trauma. Children with traumatic child-caregiver relationships often present disorganized attachment. For older children, adolescents, and adults, extreme, dissociative, and rigid behaviors are manifested by disorganized attachment. Disrupted attachment sets the stage for increased risk of mental health problems and physical ailments. Behavioral regulation is impacted for victimized children. These children are more likely to have over- or under-controlled behavioral responses which may be a result of prior trauma.

Brain capacities, such as the ability to regulate responses to stressors, can be developmentally delayed from complex trauma during toddler or early childhood years (Beers & De Bellis, 2002). Chronic stress on children tends to lead to cognitive disorganization (i.e., behaviorally and emotionally reactive presented by severe confusion, helplessness, rage, or withdrawal). After early childhood through adolescence, executive functioning (conscious self-awareness, assessment of complex emotional experiences, and ability to act based on learnings from previous experiences), which is imperative for relationship engagement and autonomous functioning, is inhibited (Shonk & Cicchetti, 2001).

Cognition is severely impacted by traumatic experiences. Maltreated children are more likely to be referred for special education services than their non-maltreated peers. Maltreatment histories have been associated with lower IQs and poorer academic outcomes (Shonk & Cicchetti, 2001) and cognition deficits are apparent as early as 18 months. Additionally, maltreated children's consciousness is altered by dissociative

adaptations, which reflect deficiencies in ability to associate or integrate information and experiences in an expected, normal manner (Beers & De Bellis, 2002). Self-concept of maltreated children is also negatively impacted as victimized children are more likely to perceive themselves as insufficient, inadequate, and unlovable. These perceptions often lend to feelings of powerlessness and self-blame for negative experiences (Schneider-Rosen & Cicchetti, 1991), increasing the risk for poor emotional regulation and substance abuse.

Internalizing behavior. Major depression disorder (MDD) is a serious mental disorder commonly diagnosed in adolescents as its lifetime prevalence rises from 1% before the age of 12 to upwards of 25% by age 18, with its peak of emergent cases between the ages of 15 and 18 (Emslie et al., 2005; Hankin et al., 1998; Kessler et al., 2001). In adolescence, onset has been associated with severe depression, higher rates of depression in family history, and increased suicide attempts than adult onset (Andersen & Teicher, 2008). Instead of sadness, adolescents are more likely to be irritable (Emslie et al., 2005). Although heritability and genes have been studied as critical determinants of depression etiology in individuals, early experiences are also critical determinants that require further research as the strongest predictors for depression in adolescents are exposure to stress and family history of depression (Thapar, Collishaw, Pine, & Thapar, 2012). In a study of female adolescent twins, more than 59% of non-shared environmental effects accounted for the variance of depression risk (Glowinski et al., 2003).

Other studies have noted environmental factors to account for a higher percentage of the variance in depressive risk than genetics (Chapman et al., 2004). Of critical

importance is the interaction between genes and environments. While stress exposure has not been linked to depressive symptoms, it has been identified as a predisposing factor that can lead to the emergence of mental health illnesses such as PTSD, substance abuse, and personality disorders (Caspi et al., 2003). Despite previous research indicating that familial history of mental illnesses is associated with increased risk for mental illness, Gore, Alestine, and Colten (1992) found that, when taking undesirable events into consideration, adolescent depressed mood was not related to parental mental illness. His study also examined gender differences in emotional impact of stressful life events, finding no significant differences between males or females.

When the brain is rapidly changing, a large window of vulnerability exists. This is of particular importance during adolescence when synaptic pruning and rapid development takes place, also unmasking predispositions (e.g., stress exposure in early life; Andersen et al., 2002; Giedd et al., 1997). This increased vulnerability could very well lend to rising depression rates during this developmental period. Acute stressors have the ability to precipitate depressive episodes in those individuals with predispositions and are primed for the mental health disorder (Leussis & Andersen, 2008). Effects of stress exposure in early life involve changes in the brain's structure, which are likely accompanied with molecular and neurochemical changes in the brain as well. These changes in the brain increase the risk for depression (Andersen et al., 1999; Caldji et al., 2003). Moreover, recent stressful events have been associated with increased depressive symptoms (Ge & Conger, 2001).

Particularly during childhood, repeated or sustained exposure to stressors has been shown to result in presentation of symptoms, which include posttraumatic stress and

disturbances in self-regulatory capacities (e.g., anger management). These symptoms are recognized as complex PTSD and is described as “PTSD and its associated features.” PTSD symptoms are recognized as a form of ongoing dysregulated emotional response to reminders of trauma that are displayed by co-occurring emotional numbing or hyperarousal and poor concentration or hypervigilance (APA, 2000; Frewen & Lannius, 2006). Koenen and colleagues (2007) studied risk factors for development of PTSD when exposed to trauma. They found childhood externalizing behavioral characteristics and history of mental health problems in the family to influence trauma exposure and development of PTSD. IQ and chronic environmental stress increased the risk of PTSD development. Responses from the child’s support system (e.g., parent, teacher, school) has been identified as a critical factor in determining the child’s outcome (Finkelhor & Kendall-Tackett, 1997).

Educational attainment. Transitioning out of elementary school into middle school can be a trying time for young adolescents as their school environment is not the only transition they are experiencing in their lives (Eccles, Lord, Roeser, & Barber, 1997). Negative experiences during this transition increases the risk for negative outcomes in adolescent mental health (e.g., self-concept and self-esteem; Wigfield, Eccles, Mac Iver, Reuman, & Midgley, 1991) and educational performance (Alspaugh, 1998). Research has identified educational disparities among minority ethnic groups and between socioeconomic groups (Brooks-Gunn & Markman, 2005; Leventhal & Brooks-Gunn, 2000), highlighting the importance of early educational achievement for long-term adjustment (Brooks-Gunn, & Markman, 2005).

Protective Factors for Adolescents with ELS

Family dynamics such as appropriate parenting and parental monitoring buffer the risk of psychopathology (DuMont et al., 2007). Community factors can also buffer the effect of ELS. For example, the school environment and teacher-student relationships can impact the trajectories of adolescents with ELS, as they spend much of their time at school. Koth, et al., (2008) studied the variations in students' perceptions of their school climate, examining school-, classroom-, and individual-level factors. They found staff turnover and school size as contributing school-level factors. At the classroom level, teacher characteristics, class size, and number of students exhibiting behavioral problems at school to influence students' perceptions of their school climate. Furthermore, race/ethnicity and gender were individual-level factors influencing perception. These multi-level factors highlight the importance of examining multiple contexts when studying perception influence and school climate.

Bond et al. (2017) longitudinally examined associations between school connectedness and social relationships in early secondary school (Year 8, Year 10, and one-year post-secondary school) and educational achievement, mental health, and substance use from a sample of 2,678 young adults who participated in the Gatehouse Project (Patton et al., 2000) and were enrolled in secondary school. Their results showed poor school connectedness and social connectedness were indicators of increased likelihood for mental health problems and substance use. Furthermore, they found social connectedness combined with poor school connectedness increased the likelihood of tobacco and marijuana use.

As bullied children are at heightened risk for poor mental health outcomes (Volk, Craig, Boyce, & King, 2006), the mediating effect of school connectedness in the relationship between bullied victims was examined in a sample of fifth through twelfth grade adolescents. Researchers found school connectedness to increase hope for bullied victims (You, Furlong, Felix, Sharkey, & Tanigawa, 2008). Furthermore, school connectedness is negatively associated with substance and tobacco use, exposure to violence, and dropping out (Brookmeyer, Fanti, & Henrich, 2006; Dornbusch, Erickson, Laird, & Wong, 2001; Henrich, Brookmeyer, & Shahrar, 2005; Miltich, Hunt, & Meyers, 2004). Low levels of school connectedness are associated with heightened risk for victimization by peers (Skues, Cunningham, & Pokharel, 2005). Studies have also examined the relationship between school connectedness and emotional and behavioral outcomes, identifying high levels of school connectedness as a buffer for emotional and behavioral problems (Way, Reddy, & Rhodes, 2007).

Previous research indicates youth with poor educational engagement or who have poor teacher and peer relationships are more likely to engage in risky behavior such as drug use, have poor relationships in adulthood, report mental health issues such as anxiety and/or depression, and have poor educational attainment (Bond et al., 2001; Barclay & Doll, 2001; Catalano, Kosterman, & Hawkins, 1996; Resnick et al., 1997). Students from high poverty schools are less likely to feel connected to school, yet are likely to benefit from a positive school environment than their low poverty peers (Battistich et al., 1995).

Theoretical Frameworks

Life course theory. According to Elder (1998), life course theory was developed with purposes of providing a framework for studying the contexts of human development and family sciences which incorporates developmental trajectories, social change, and social pathways. The life course theory connects familial factors with individual development, emphasizes the role of time, and posits that change is influenced by historical period, cohorts, and age. There are five principles to guide such research: (1) aging and development are processes which last a lifetime; (2) each individual guides their own life course through their behaviors and pathways they take based on their opportunities and constraints; (3) the individual life course is influenced by historical periods and events as well as the culture/places experienced throughout the lifetime; (4) developmental behavioral patterns, events, and transitions vary with regard to when they occur in an individual's life; and (5) individual lives are impacted society and shared relationship networks express socio-historical influences.

Risk and resilience from an ecological perspective. According to Fraser (1997), many circumstances are accompanied with risk and resilience factors and several factors could be risk and resilience. For example, the school environment can be a risk factor for high school drop out if the environment is perceived as negative; however, the school environment can be a resilience factor for youth if it is perceived as supportive. The same situations are true for familial factors such as family structure and family closeness (Fraser, 1997). Common resiliency factors, also referred to as protective factors, are self-efficacy at the individual level and positive social relationships at the contextual, or environmental, level.

Conclusion

Early life stressors (ELS) can have lasting effects on development, particularly during the highly sensitive developmental period of adolescence (Caspi et al., 2002; Ducci et al., 2009; Enoch, 2011; Gallus et al., 2014). ELS can lead to mental health problems such as depression, PTSD, and substance abuse (Dong et al., 2004; Hyman & Sinha, 2009). When experienced during adolescence, ELS can also have adverse outcomes related to educational attainment (Brookmeyer, Fanti, & Henrich, 2006). These stressors, although common, highlight the need for protective factors, especially for such a vulnerable population.

Parental involvement and positive parent-child relationships have been identified by the CDC (2016) as protective factors, which buffer the effect of stressors. In addition to familial factors, other environmental factors such as supportive school environments can act as a protective factor for youth who have experienced an ELS. While protective factors in the home (e.g., parent-child closeness, supportive parent-child relationships) are critical (Fraser, 1997; CDC 2016), social relationships and community contexts are also very important for buffering the impact of ELS. Social relationships include peer relationships and relationships with teachers (CDC, 2016). While peer relationships can serve as a protective factor for anger expression, antisocial behavior, and dropout, they can also serve as a risk factor for the same adverse outcomes (Bond et al., 2017; Hughes & Chen 2011). As youth spend much of their time at school when they are not at home, the school environment may protect them (National Research Council and Institute of Medicine, 2002) from the negative impacts of ELS. This may be particularly true for youth with poor family relationships. Teacher-student relationships can also serve as a

protective and risk factor depending on the quality of the relationship. Positive teacher-student relationships have been identified as a protective factor for negative outcomes from ELS. Youth's perceptions of their school climate can also serve as a protective or risk factor as positive perceptions can influence higher levels of school connectedness and negative perceptions can translate to lower levels of school connectedness (Hughes & Chen 2011). Identification of protective factors beyond the home environment is critical to the study of early life stress for purposes of developing and enacting programs and policies geared towards adolescent resilience.

Table 1. *Correlations for major study variables*

	1	2	3	4	5	6	7	8	9	10
1 Early Life Stressors (ELS)	-									
2 Teacher-Student Relationship Quality (TSRQ)	-.24***	-								
3 School Connectedness	-.27***	.55***	-							
4 Antisocial Behavior	.59***	-.28***	-.24***	-						
5 Anger Expression	.39***	-.21***	-.19***	.40***	-					
6 Parental Involvement	-.41***	.32***	.29***	-.43***	-.28***	-				
7 Female	-.02	-.01	.04	-.12***	.13***	-.11***	-			
8 Black	.14***	-.08**	-.07**	.04	.09***	.04	.05*	-		
9 Latino	-.05	.01	.07*	.06*	-.05	-.07*	-.05*	-.63***	-	
10 White	-.10***	.08**	.00	-.11***	-.05	.03	.00	-.38***	-.48***	-

***p< .001, **p< .01, *p< .05

Table 2. *Descriptive Statistics for all major study variables*

	N	%	M	SD	Min	Max	α	Skewness
Early Life Stressors (ELS)	1341		6.06	3.39	0	16	.75	.21
Never experienced ELS	50	3.73%						
Experienced 1 or more ELS	1291	96.72%						
Experienced 2 or more ELS	1215	90.60%						
Teacher-Student Relationship Quality (TSRQ)	1456		3.03	1.20	0	4	.70	-1.08
School Connectedness	1440		4.29	1.71	0	6	.71	- .72
Antisocial Behavior	1402		2.72	2.29	0	7	.71	1.14
Anger Expression	1465		2.58	1.70	0	6	.66	.34
Parental Involvement	1378		11.45	3.23	0	15	.82	- .93
Female	736	49.63%						
Male	747	50.37%						
Black	490	32.93%						
Latino	661	44.42%						
White	337	22.65%						

Table 3. *Group differences in ELS experiences by gender and race/ethnicity (N=1341)*

	Male				Female			
	White	Black	Latino	Chi-Square	White	Black	Latino	Chi-Square
Have you ever known of or seen a family member arrested, jailed, imprisoned, or taken away (by immigration)?	50.6% (85)	71.1% (160)	65.7% (230)	a, b	43.5% (73)	73.1% (190)	67.1% (204)	a, b
Have you ever been in or seen a serious accident where someone was severely injured or died?	39.6% (67)	44.0% (99)	46.2% (162)	b	38.7% (65)	43.5% (113)	40.1% (123)	NS
Have you ever been in a natural disaster where someone was injured or died?	20.2% (34)	16.1% (36)	12.4% (43)	NS	15.6% (26)	16.2% (42)	12.7% (39)	NS
Has someone ever physical assaulted you, like hitting, pushing, choking, stabbing, biting, or burning?	44.6% (75)	36.4% (82)	33.6% (118)	b	40.7% (68)	43.1% (112)	23.2% (71)	b, c
Has someone ever directly threatened you with serious physical harm?	33.9% (57)	27.1% (61)	24.6% (86)	b	24.6% (41)	28.1% (73)	13.0% (40)	b, c
Have you ever been present when a family member, caregiver, or friend was mugged?	10.1% (17)	21.9% (49)	23.1% (81)	a, b	8.9% (15)	18.8% (49)	23.5% (72)	a, b
Have you ever seen or heard people in your family shot, stabbed, or violently abused?	24.4% (41)	48.4% (108)	32.9% (115)	a, c	28.1% (47)	54.6% (142)	32.7% (100)	a, c
Have you ever seen or heard violence such as beatings, shooting, or muggings that occurred in places like your school or neighborhood?	46.4% (78)	69.2% (155)	67.8% (238)	a, b	50.9% (85)	69.1% (179)	57.2% (175)	a, c
Have you ever been separated from someone you depend on for love or security for more than a few days?	31.5% (53)	39.8% (90)	33.3% (117)	NS	49.4% (83)	48.6% (126)	32.2% (99)	b, c

Table 3. *Continued*

	Male				Female			
	White	Black	Latino	Chi-Square	White	Black	Latino	Chi-Square
Due to your race, ethnicity, social class, etc., have you ever been hit/handled roughly; insulted/called names; treated rudely/unfairly; threatened; refused services/subjected to delays in service; or excluded/ignored?	67.9% (114)	71.7% (157)	75.8% (263)	NS	65.3% (109)	74.5% (187)	68.6% (205)	^a
Due to race, ethnicity, social class, etc., has anyone in your family been discriminated against in any way?	16.7% (28)	27.3% (60)	41.4% (144)	^{a, b, c}	19.3% (32)	37.1% (95)	38.8% (118)	^{a, b}
Are there any gangs in your neighborhood?	39.8% (66)	61.5% (139)	57.6% (196)	^{a, b}	37.1% (62)	63.3% (164)	48.2% (146)	^{a, b, c}
During this school year, have you been bullied at school, online, or by cell phone?	47.0% (79)	23.6% (53)	33.4% (117)	^{a, b, c}	43.1% (72)	28.2% (73)	34.8% (106)	^a
My mother/father/sibling uses drugs.	18.5% (30)	22.4% (29)	15.3% (50)	^c	23.5% (38)	32.0% (81)	20.4% (61)	^c
My mother/father/sibling has a problem with alcohol.	19.5% (32)	22.3% (49)	21.9% (72)	NS	30.2% (49)	22.1% (56)	23.6% (71)	NS
Have you ever felt pressure to have sex?	32.1% (54)	51.3% (116)	40.4% (141)	^{a, c}	25.7% (43)	37.5% (98)	19.3% (59)	^{a, c}

Note: NS=not significant; ^astatistically significant difference between White and Black, $p<.05$; ^bstatistically significant difference between White and Latino, $p<.05$; ^c statistically significant difference between Black and Latino, $p<.05$.

Table 4. *Regression coefficients for anger expression with moderation (N=1235)*

	Model 1			Model 2			Model 3			Model 4		
	B	SE B	β	B	SE B	β	B	SE B	β	B	SE B	β
Early Life Stressors (ELS)	.21	.01	.41***	.19	.01	.38***	.17	.01	.34***	.17	.01	.34***
Teacher-Student Relationship Quality (TSRQ)				-.09	.04	-.06	-.05	.04	-.03	-.04	.05	-.03
School Connectedness				-.06	.03	-.06	-.05	.03	-.05	-.06	.03	-.05
Female							.49	.09	.14***	.49	.09	.14***
Latino							-.03	.11	-.01	-.04	.11	-.01
Black							.09	.12	.03	.08	.12	.02
Parental Involvement							-.06	.02	-.11***	-.06	.02	-.11***
ELS*TSRQ										-.00	.01	-.01
ELS*SC										.01	.01	.04
R ²		.17			.18			.21			.21	
ΔF					7.05**			13.40***			1.22	

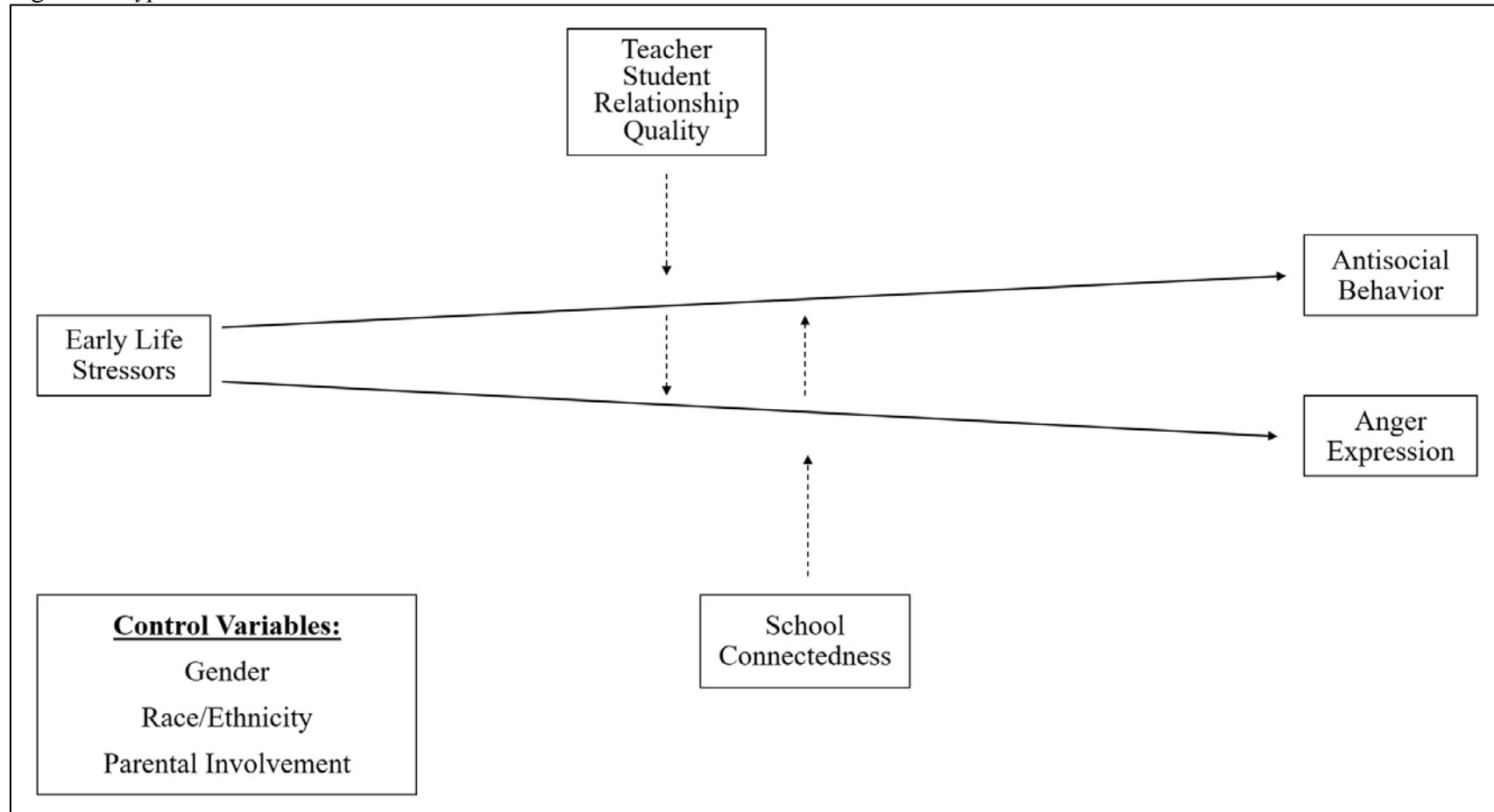
Note: White is the reference category for race/ethnicity. **p < .01, ***p < .001

Table 5. *Regression coefficients for antisocial behavior with moderation (N=1196)*

	Model 1			Model 2			Model 3			Model 4		
	B	SE B	β	B	SE B	β	B	SE B	β	B	SE B	β
Early Life Stressors (ELS)	.25	.01	.52***	.23	.01	.47***	.20	.01	.41***	.20	.01	.41***
Teacher-Student Relationship Quality (TSRQ)				-.22	.04	-.16***	-.17	.04	-.12***	-.15	.04	-.11***
School Connectedness				-.00	.03	-.00	.01	.03	.01	.00	.03	.00
Female							-.30	.08	-.09***	-.31	.08	-.09***
Latino							.43	.10	.13***	.42	.10	.13***
Black							.01	.11	.00	.01	.11	.00
Parental Involvement							-.11	.01	-.20***	-.10	.01	-.20***
ELS*TSRQ										-.03	.01	-.07*
ELS*SC										.01	.01	.02
R ²		.27			.29			.35			.35	
ΔF					19.42***			25.98***			3.30*	

Note: White is the reference category for race/ethnicity. *p < .05, **p < .01, ***p < .001

Figure 1. *Hypothesized Model*



VITA

Tia Crystal Paige Claybrook

Candidate for the Degree of

Master of Science

Thesis: EARLY LIFE STRESS AND THE MODERATING EFFECT OF THE
SCHOOL

Major Field: Human Development and Family Science

Biographical:

Education:

Completed the requirements for the Master of Science in Human Development and Family Sciences at Oklahoma State University, Stillwater, Oklahoma in May 2018.

Completed the requirements for the Bachelor of Science in Human Development and Family Sciences at Oklahoma State University, Stillwater, Oklahoma in 2015.

Experience:

January 2016 – Present, Graduate Research Assistant, Center for Family Resilience, Department of Human Development and Family Science, Oklahoma State University, Tulsa, Oklahoma

August 2016 – December 2016, Graduate Teaching Assistant, Department of Human Development and Family Science, Oklahoma State University, Tulsa, Oklahoma

Professional Memberships:

February 2016 – Present, Student Member, Society for Research on Adolescents